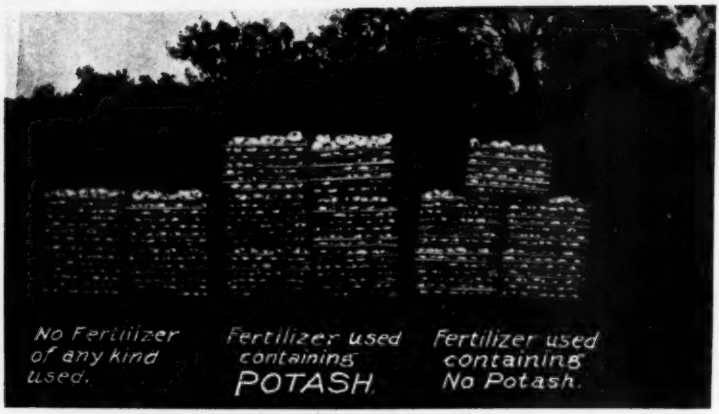
Better Crops

The Pocket Book of Agriculture

November 1924 10 Cents.

A Turn in the Road by A. B. Genung—Ton Litters by C. E. Gapen—A Tobacco-Chewing Germ by F. D. Fromme



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Better Crops

The Pocket Book of Agriculture

VOLUME III NUMBER THREE

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November

Better Crops

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VOL. III NEW YORK, NOVEMBER, 1924 No. 3

¶Is agriculture lagging behind other industries to the point where

COMPARISONS *are* ODIOUS?

asks

Jeff McDermid

WILLIAM SHAKESPEARE, Cervantes, Dr. John Donne and John Fortescue agree on one thing: that comparisons are odious.

And because these four able writers make the assertion, many, unable or unwilling to think for themselves, believe it to be true—and thus hesitate to make comparisons that might be helpful.

But all comparisons are not odious. Some are, I admit. But, odious or sweet-smelling, the making of comparisons is a fruitful enterprise.

I ONCE knew a man, insufferable egotist, who had just succeeded in walking from Chicago to New York. Because of his infernal egotism he prated of this marvellous feat until all his friends agreed that, as a modern, well-oiled bore, he had no equal.

There was only one way to dam him up (his friends had damned him up and down) and I proceeded to follow that course: to compare his feat to those of other, older men who

had walked ten, twelve and fifteen times *across the country*.

I looked up the records of Edgar Weston, Walker-Emeritus, and confronted the egotistic Chicago-New Yorker with Weston's jaunt-mileage.

I found that a little French girl, thirteen, had walked from Bordeaux to Constantinople and back, earning her food along the way chanting little French peasant songs.

I discovered that *hundreds* had walked from Chicago to New York.

I gave it to him hard. I made his little thousand-mile walk look like a Sunday afternoon amble through the park.

And he quickly shut up—the comparison forced him to do one of two things; either hang up a real record about which he might have the *right* to cackle, or be forever silent.

So comparisons are odious only to those who suffer by the comparison, or those to whom a comparison teaches no lesson.

And this matter of comparisons is important, for it affects everybody, everything—all things are but relative. White is white by comparison with black.

John Henry Foster, owner of The Fair, Biggsville's largest department store, is a success—until his income tax appears publicly printed under that of Henry Ford's. Then how Foster's success shrinks!

All comparisons are not odious—some are eye-openers. And if we can but juggle and jiggle our minds into the properly receptive attitude, comparisons may be very helpful—they set up marks at which we may shoot, thus improving our aims.

Agriculture has often been the victim of inane and useless comparisons.

But to compare agriculture broad-mindedly and fairly with other industries is not necessarily an odious business. Instead, the process may awaken some dormant impulses and arouse lethargic opportunities—much to our benefit.

YESTERDAY three men were killed, and twenty went crazy, breathing "loony gas." What is it? A new "ethyl" product, a chemical compound which, when added to gasoline, permits the gasoline to be used in high-compression automobile motors.

The General Motors Corporation, having built the high-compression motors, found them good—with one exception. The motors "pinged." That is, they compressed the gas so completely that when the spark plug exploded the cylinder-charge, a detonation, or "ping" occurred; very annoying when multiplied in a racing six-, eight-, or twelve-cylinder car.

So the General Motors, gentle reader, combined, joined hands and got together with another exponent of Big Business—Standard Oil—forming a $5,000,000 corporation to investigate the possibilities of developing a new gasoline which would not "ping!"

And "Ethyl" something or other is the name of the new compound which the chemists of the new $5,000,000 corporation have perfected, and in the perfecting of of which several workmen went "loony" from inhaling the laboratory fumes.

Gasoline comes from the ground. So does clover.

Does it occur to you that on this one experiment Big Business invested more millions than agriculture has yet appropriated to develop facts about clover? That General Motors and Standard Oil, Twins of Dollardom, are more vitally interested in *their* future than agriculture is in *its own progress?*

ALL about us we see evidences of superior development and acute foresight and watchfulness. We see

(*turn to page 47*)

How I PLAN My WORK

By R. A. *Langenbacher*
County Agent, St. Charles, Missouri

¶A good plan is half the battle. You will find some useful ideas in this account of Mr. Langenbacher's work.

AFTER having spent five years in county agent work I have found that there are many ways to really increase the value of the work in the county. In general, it is first necessary to have each community in the county organized with a definite program of work and a goal toward which they set their mark.

I have found that we are able to get many times more the amount of work accomplished in a community that has a definite aim in view than we can in a community where there is no such organization. Proper publicity of the work being carried on in the various communities, giving the names of the farmers and their wives who act as committeemen and in that way help to put over the program, as well as material that will attract their attention when visiting the county agent's office are two very important means of getting the work before the people in general.

We have in St. Charles County eight organized communities, each of them having a definite program of work that is so outlined as to give them something to think of during the entire year. From our projects selected by our county project committee, these communities select the projects that they wish to work on for the coming year.

DURING 1923, our work in the county covered general organization, animal husbandry, dairy husbandry, field crops, home economics, horticulture, marketing, poultry, and soils. Each of these projects is headed by a county chairman selected at the regular annual meeting because of his or her special fitness to lead with the work.

We then go into a community that seems to be ready to take up a definite program and have them select three or four of their best leaders who, in turn, meet with the agent and work out a tentative program for the coming year. This committee also endeavors to select leaders for each project who are especially fitted to take charge of that work.

A mass meeting of the entire community is then called and the program with the goal set is presented to them for their approval or amendments. After the program has been adopted to the satisfaction of all the people of the community the matter of leaders is

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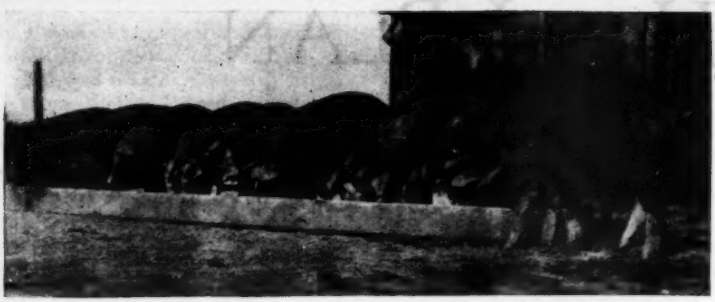


The first ton litter in Indiana (1923), where 12 pigs raised by Charlie Phillips, of Rush County, weighed 2,190 pounds at six months.

TON LITTERS

By C. E. Gapen

U. S. Department of Agriculture

¶Here is a lively account of how the movement for better crops of pigs got under way.

THE brood sow is a pork factory. Her raw materials are the feeds produced on the farm and the farmer is the foreman. She is specially designed and constructed to turn out annually, according to her capacity, a certain number of potential pork producers, the number depending on how good a factory she was made to be by inherited characteristics and development, and on the ability of the farmer-foreman. Her output must be of sufficient quantity to lower the overhead cost. Quantity production of pigs in the litter is a mark of her efficiency and value, just as quantity production is the mark of efficiency in Mr. Ford's flivver factory. The more four-cylinder runabouts the old sow assembles and turns out each season for the foreman to bring to market perfection, the less the cost of production and the greater the profits per factory.

Three years ago James R. Wiley, swine specialist of Purdue University, saw that there were a lot of pork factories in his State being run on a half-efficient basis and that the farm factory owners and managers were suffering the loss of possible profits. Specific data collected from 52 farms in Indiana showed him that where less than five weanling pigs were raised per litter it required an average of 277 pounds of feed for each pig raised, the cost of feed being $2.78. On farms where seven or more pigs were raised per litter, it took only 138

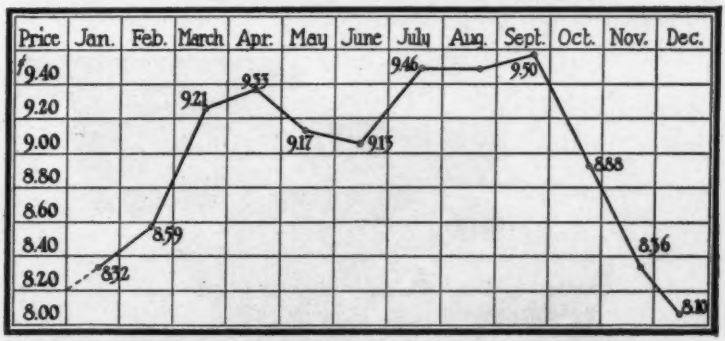
pounds of feed that cost $1.38 on the average to produce a weanling pig two months old. These figures included all feed fed to the brood sow and the herd boar from the time the sows were bred in the fall until the pigs were weaned in the spring—a six months' period—as well as the feed fed to the pigs. To this amount of feed was added the feed fed from weaning time until the hogs were marketed in order to determine the cost of a hundred pounds of gain. On farms where less than five hogs were marketed per litter it took 517 pounds of feed to produce a hundred pounds of gain at a cost of $5.43. On the farms where an average of seven or more hogs were marketed to the litter it took only 348 pounds of feed at a cost of $3.90 per hundred pounds of pork produced.

Armed with this information the swine specialist instructed his lieutenants to organize what has since become famous as the "Hoosier Ton-Litter Club." The membership was made up of 555 Indiana swine raisers who had confidence in their ability as first-class hogmen and some sporting blood in their veins. The importance of the size of the litter raised and marketed was to be emphasized in this contest for a little gold medal. The object was the production of a ton-litter at the age of six months. It was obvious from the figures quoted above that large litters raised were produced at a lower cost per pig and that large litters were to be desired.

Then why the six months' clause? Take a look at the graph of the Chicago hog market which Wiley prepared. It shows that on the average for the last twenty years hog prices on this market have been the highest of the year in the months of July, August and September. Pushing an early spring litter to make it weigh a ton when six months old means that it will go onto the late summer market when prices are the highest.

Those figures and arguments were convincing and the race was on. Of the 555 members of the Hoosier Ton-Litter Club who started in the race the first year 33 crossed the finish line and produced 36 ton litters. The second year, in 1923, there were 854 members enrolled

What do market prices show about selling hogs at different times of the year? The table below, which shows the average monthly prices of all hogs on the Chicago market for the past twenty years, answers the question.



On the average July, August and September have been the highest months of the year, with November, December and January the lowest months. The average drop in hog prices from September to December for the last twenty years has been $1.40 per hundred. From the market standpoint over a period of years, it looks like a good business proposition to push the early spring pigs along rapidly and get them on the late summer market.

and 58 of them produced 61 ton litters. This year there are 567 members in the race.

SOME significant facts can be drawn from the complete results of the two years' contest in Indiana. But before we take an inventory of these facts let us have a look at some of the ton litters that have been produced. It has not been the thought underneath all of this contest to develop only one ton litter in a herd at the expense of all others, but to bring as many as possible to the ton mark or at least a good weight. Perhaps this is best seen in the work of H. H. Munns of Montgomery County, Indiana, in 1922, the first year of ton litter work. Mr. Munns had 14 sows which he had selected for performance, all of them coming from big litters. The 14 sows farrowed 137 pigs. Clean farrowing quarters and good care on his part enabled the 14 sows to raise 113 pigs, an average of 8 to the sow. He fed these litters out and produced two ton litters weighing 2,460 and 2,000 pounds, a third litter that lacked but 10 pounds of a ton, and secured an average weight for the 14 litters at six months of 1,660 pounds.

From weaning time until the hogs were six months old they were fed corn and tankage on clover pasture. It required an average of a little more than six bushels of corn and 13 pounds of tankage for each hundred pounds of gain made by the hogs during this period at a total feed cost of $4.00 per hundred pounds of gain. The hogs sold for $9.55 per hundred, leaving a margin over the feed cost of $5.55.

The heaviest litter yet produced in Indiana was raised by Chester Meal of Rush County in the second year of the work in the State, 1923. The 13 pigs in the litter weighed on the 180th day 3,210 pounds. This county also claims the first ton litter of the year. Ivan Hayhurst of Lake County raised a litter of eight pigs last year that passed the ton mark at six months of age with a margin to go. This litter is the heaviest eight pig litter yet recorded in Indiana weighing 2,153 pounds or 269 each. This remarkable litter was given space at the International Livestock Exposition last December and was shown as the State Champion Ton-Litter of eight pigs.

COUNTY AGENT D. D. BALL of Bush County gives the following condensed summary of one of the ton litters raised in his county which he says is typical of the rest and shows how well the factors of breeding, management, and feeding were

(*turn to page 39*)

This litter of 13 pigs, raised by Chester Meal, of Rush County, Indiana, weighed 3,210 pounds at six months (1923).

Better Cabbage Yields

By H. E. Young

¶This crop has great profit possibilities if correctly cultivated.

AS a commercial crop, cabbage occupies a very prominent place on land devoted to truck production. It is more than a garden crop. It is a crop which can easily be adapted to general farm conditions, and one which offers many advantages where good market conditions prevail. To the farmer seeking a profitable cash crop cabbage merits serious consideration. While not a crop to be extensively undertaken by the farmer inexperienced in the trucking business, it may be made to return very satisfactory results especially when entered into intelligently and in a limited way.

Farmers experienced in the commercial production of cabbage hold to it as a regular market crop, and realize splendid profits, considering the amount of land involved in its production. Methods in cabbage production vary more or less in different sections, but as far as soil fertility is concerned, the general proposition is much the same, in that maximum crops can only be produced on soils which are well supplied with available plant food elements. Herein lies the fundamental secret of profitable cabbage production. With good soil properly enriched the first and primary problem is solved. Without this requisite, maximum profits are impossible no matter how perfect may be the cultural methods. The plants can not live, develop and mature to best advantage unless the soil contains the needed plant food elements and in a form easily available to their use.

This is where successful growers of cabbage have scored their initial success. They have given due consideration to soil fertility and provided suitable conditions for

This is the plat in which Mr. Heckal used no fertilizer.

their full and proper maturity. With this need accomplished the degree of success as a commercial proposition rests mainly upon intelligent tillage. Seasonal conditions will, of course, be a factor in final results, as will also the market situation, but a good crop yield must first be assured if satisfactory profits are to be gained. Such assurance begins, and in a great majority of cases may also be said to end, with the amount of available fertility in the soil.

IN dealing with the question of fertility the experience of successful farmers who are producing similar crops at a profit is most valuable. This is as true with cabbage as with other crops. Growers will find valuable suggestions in the operations of Mr. Anton Heckal, of Appleton, Wisconsin, an experienced producer of this crop.

The soil on Mr. Heckal's farm is a black sandy loam, with clay subsoil. The average local yield of cabbage in a favorable season is about 20 tons per acre. Mr. Heckal desired to grow better than average crops. He decided to find a way to do it, and naturally he began by questioning the soil as to its fertility. A field which had grown alfalfa, followed by sweet corn, was selected for the test. The soil was well prepared to one part of the field a commercial fertilizer containing 150 pounds of dried blood, 500 pounds of 14-per cent acid phosphate, and 212 pounds of sulfate of potash per acre was applied. On another portion 150 pounds of dried blood and 500 pounds of acid phosphate, without any potash, were applied, while a third was left without any fertilizer treatment. The crop was planted about June 9, the fertilizer having been applied about ten days previous. The early part of the season proved very favorable to the crop, but on account of unfavorable weather later the crop suffered somewhat.

At harvest the land which received no treatment produced 18.7 tons of cabbage per acre. Where the complete fertilizer mixture, containing nitrogen, phosphorus and potash, was used the yield was 27.4 tons per acre, or an increase of 8.7 tons over the unfertilized. Where the incomplete mixture, containing nitrogen and phosphorus, but no potash, was applied the yield was 24.4 tons per acre.

IT will be noted that the use of the complete fertilizer, containing potash, not only produced an increased yield over the unfertilized crop but it also gave better results

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These are cabbages on the plat where Mr. Heckal used a complete fertilizer.

A Tobacco-Chewing Germ

By F. D. Fromme

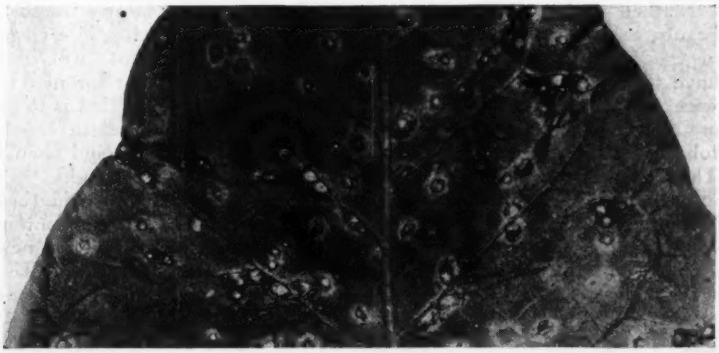
Virginia Agricultural Experiment Station

You will like this article because the author, in addition to being an expert on the subject, has a lively sense of humor.

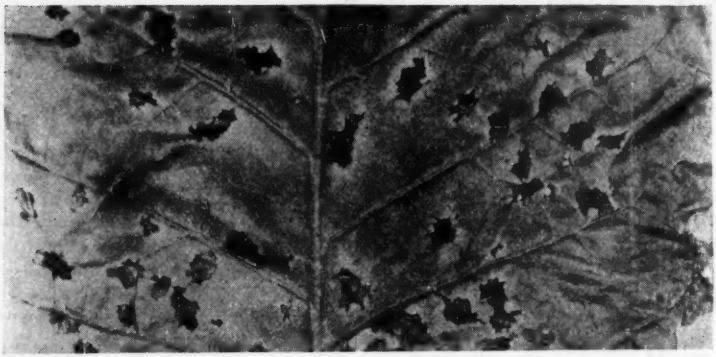
"YOU experts calls it Wildfire, but we calls it Hellfire; it shore does play H.... with a tobacco crop." This was the unanimous verdict of the tobacco farmers of Virginia in 1920, as expressed by one of them. The wildfire disease was present in that year on nearly every farm and many crops of tobacco were ruined. The total loss for the state was 22 million pounds of tobacco valued at 24 cents per pound. A five million dollar fire on the farm is some fire.

The "expert" had told the farmer that wildfire is a germ disease fully as virulent as hog cholera or smallpox, but the farmer didn't believe in germs. He allowed that wildfire was caused by the guano or by wet weather. The "expert's" comeback was: that fertilizer and rainfall are pinch hitters; that the disease can't score unless the germs are there. Fertilizer jazzes the wildfire germs as well as the tobacco and rain spreads them around in the field. You can play a mean joke on the wildfire germs by laying-off with the fertilizer and praying for dry weather—there won't be any tobacco crop for them to live on

AFTER the disaster of 1920, the farmers were ready to try anything once and so they gave the germ theory a chance—with mental reservations. The next year they lost only a little tobacco and some of the reservations. And the good work has continued—the fire hasn't burned up a crop in Virginia for three years.



Wildfire spots on a tobacco leaf. The spots are circular and are surrounded by a halo.



Blackfire spots on a tobacco leaf. The spots are angular and have no sharp halo as in wildfire.

The writer is using the term "wildfire" in the sense that the farmer uses it—when he does. There are really two closely related diseases, wildfire and blackfire, both caused by germs with the tobacco habit. Blackfire is the major disease in Virginia; wildfire is only a lieutenant. The former has caused 80 per cent of our losses which the farmer lumps under wildfire. Either disease is capable of ruining a tobacco field between drinks.

Descriptions of symptoms and life-history stuff make dry reading. Most of us want the prescription without the trimmings—so I will say it with pictures and as few words as possible.

Neither disease is a thing of beauty except perhaps in the eyes of the Plant Doctor, who would have to work for a living if there were no diseases. Blackfire spots are angular, except on heavy, dark tobacco where they are rounded. They are dark-brown or tan in color and almost black in the early stage. Wildfire spots are round with a tan center and a yellow or pale-green halo. They look somewhat like the moon with a ring around it—only smaller.

BOTH diseases occur in the plantbed and are carried to the field on the transplants. If the plantbed is clean there is little danger of loss in the field. A clean plantbed is ninety-nine per cent of the secret of control. There are probably a hundred different ways by which the germs may reach the plantbed. The important ones and the methods of preventing them are:

The seed: Get seed from clean plants and from clean pods. Cover the flower stalks with paper bags. To remove the seed clip the ends of the pods so that you get as little chaff as possible. The germs are in the chaff. If you are not certain that the seed is clean soak it for 15 minutes in 1 to 1,000 bichloride of mercury (poison), wash in water, and seed at once. Or dry the seed and store in a clean bag in a clean place. The treatment will not injure seed that is to be sprouted in the plantbed, but seed that is to be sprouted in punk or cloth before sowing will be injured and should not be treated with bichloride.

The plantbed. An old plantbed even though burned may contain the germs. Make the bed on new soil or sterilize with steam. Use new canvas or boil the old one thoroughly. Use new poles. If sash and frames from an old bed are used clean and wash them with a solution of formaldehyde.

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¶Because Mr. Genung has the rare ability of looking facts squarely in the face his surveys of the agricultural situation are worth careful study. Here he notes some hopeful changes that bring promise of better times.

A Turn *in the* Road

By A. B. Genung

SAM JACKSON came down the steps of the bank, the end of a new check book sticking out of the pocket of his jumper. This was in a wheat town in Kansas.

"Well, Sam, how does it feel to have money once more?"

"Why, it's a right human feeling while it lasts—which is about as long as a cake of ice in a hot wind. I've enjoyed a bank balance now for 72 hours, which I guess is about the limit.

"Makes me think of a little rhyme I used to know when I was a kid: 'Solomon Grundy, born on Monday, christened on Tuesday, married on Wednesday' and so on to a seven-day finish.

"That's me. Last Monday I deposited my elevator checks, forty-eight-hundred-odd dollars. That same day I paid my notes at the bank. Tuesday I made the mortgage payment that was due last March together with interest and interest on the interest. Yesterday I drove over to Sawtelle and paid Jimmy Calkins for a couple of binders and a harness and some other truck thats been owin' him for two years. Jimmy said he'd kind of got attached to my note and hated to see it go, but I reckon he'll find some use for the money even though he's pretty well heeled. Well, that's the way it goes. Life this week is just about one darn liquidation after another. This check book is almost brand new but its gettin' thinner than a February jack rabbit."

Sam patted the breast pocket of his jumper.

"But I'm not kickin' any, you bet. Go to bed every night with my mind one notch easier. Haven't been so near to beatin' the game in five years. Fact is, I've got a little money left here in the bank and a little grain yet to sell. Pretty good year for this country, eh?"

"Going to buy yourself a new car?"

"Well, I got to do something. My old flivver's plumb reached a state of anarchy—every nut for himself. I believe the cheapest thing for me to do is to get another car. Don't hardly feel as though I can afford a new car; been thinkin' that when I can get over to Hutchinson I'll see if I can't pick up a good second-hand Ford or maybe a Dodge or something like that. Hot ain't it?"

SUCH is the sentiment of the Wheat Belt. This season has injected a ray of light into the four-year-old darkness. A 15-bushel crop and dollar wheat once more—not overwhelming wealth, to be sure, but some tangible income. A chance to pay off the most pressing debts;

to buy a little much-needed equipment and a few new clothes for the family that is still washing and patching its 1919 models.

There will probably be something over 600,000,000 bushels of wheat sold from this last crop. Quite a lot of it has moved at about a 25 cent higher price than last year. Some of the crop will not sell for that much above last year, though a little has brought even more. It is probably within the bounds of reason to say that the crop should bring growers $200,000,000 more than last year, which is quite a sizeable addition though hardly up to some of the wild newspaper talk of a few weeks ago.

Probably two-thirds of that new money has gone to settle debts. A little of such capital has drifted back into the great eastern money reservoir, merely helping the same to its present state of overflow. But the vast bulk of it is flowing through the local and regional banks, thawing out the frozen assets, replenishing the country's vital reserves, a current of warm, new blood circulating through the local financial system.

Some of those settled debts represent reserves built up again by the individual farmer. The overdue payment made on mortgage principal, the notes paid off for equipment and stock still in hand mean some farmer that much ahead.

Then there is, too, a considerable amount of new buying. Seventy-five million dollars of additional spending on the part of one group of producers means some little increase in its worldly possessions. Farm machinery, buildings, fences, and automobiles are run down, out of repair, worn out. The whole farm plant has become seriously in need or rejuvenation.

ONE hears quite a little comment among city journalists and others on the number of automobiles being bought by the wheat country. The common tenor of these remarks is by way of emphasizing the farmer's prosperity; not infrequently the comment has an ironic edge. Farmers are, indeed, buying automobiles, for their cars bought five years ago or more are badly worn. What they are buying however, is the cheap car, either new cars of the Ford class or used cars at about those prices.

The urban community is still a long way from understanding the status of the automobile on the farm. It still looks upon the farmer's car as a luxury—his one great luxury. That is about as near the truth as that the trolley car is the city man's luxury. The truth is that the automobile has replaced the road horses of this country. The small car of today costs no more than a good horse, wagon and harness. It has bridged the universal gap between farm and town and done it with an actual, measurable gain in productivity per agricultural worker. The automobile has cut down one of the biggest factors of overhead in agricultural production, the time necessarily spent on the road. It has done this so marvelously in the West where distances are great that it is today almost as essential as the grain binder. If automobiles were wiped off American farms tomorrow the country would not be a surplus producer for three years. It is time to tune out a lot of this talk about the farmer being a continuous joy-rider. If the farmers are able to replenish some of their vital transportation equipment this fall it is not only a hopeful but a mighty sensible sign. And the writer does not run a garage, either.

THE Wheat Belt is not the only region that will be able to use its check book this fall. East of it lies the great Corn Belt where dollar corn means something on the Christmas tree. True, the corn crop outlook couldn't be very much worse

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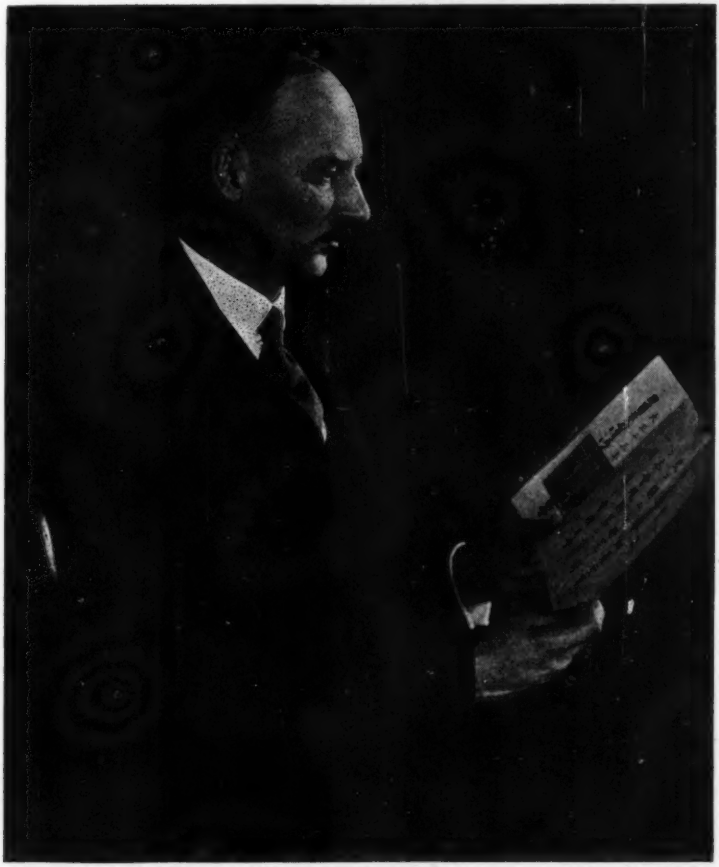
Better Crops' ART GALLERY *of the month*



Dr. B. H. Ransom, Chief of the Zoological Division, Bureau of Animal Industry, U. S. Department of Agriculture, was recently honored by a Japanese medical society, The Seamen's and Tropical Diseases Research Association of Kobe, for his work in developing a knowledge of the roundworm of humans and of swine. Dr. Ransom developed the system of swine sanitation, sometimes known as the "McLean County system," which is now being used extensively in several of the corn belt States to protect young pigs from infestation by these worms which annually cause great loss to the swine industry.

These pictures contributed by County Agent L. F. WAINSCOTT of *Caldwell County, Mo., tell an interesting story. See caption below.*

When the Mormons stopped near Far West in Caldwell County, Mo., several cabins were built using lime rock in the construction of big fire places. Differences arising between the natives and Mormons resulted in these cabins being burned and only the lime and ashes remained. The above pictures were taken after forty years of intensive cropping on and near the site of one of these cabins. The field on the left is now sowed to alfalfa and where the lime residue remains luxuriant growth of dark alfalfa is present. Only a few feet away where no lime is found, the alfalfa is short and pale in color as shown in the picture on the right.

Here the usual roles are reversed. A farmer of Sumter County, South Carolina, is showing County Agent James M. Eleazer how he grows 1,300 pounds of cotton to the acre.

Sleuthing for Red *in the Soil*

By H. W. *Warner*
Iowa State College of Agriculture

¶Science has devised ways of catching this menace to profitable agriculture.

THE spectre that follows in the wake of agriculture is not ashy gray —it is red. Not the kind that throws bombs, burns churches and confiscates wealth, but rather the red that stalks the farmers plow leaving in its wake eroded hillsides, abandoned farms and deserted villages. I mean soil acidity—the "red" in the land.

It is strangely coincidental that the tendency of soil acidity is in fact a "red," fomenting disorganization, revolution and destruction of the generally proven and most highly desirable systems of soil maintenance. Equally strange is the fact that the detectives that hunt out and make known the "red" in the soil make their revelation in red colors.

The importance of searching out and bringing to light this disturbing force in the land—soil acidity—is better understood and appreciated when it is known that fully three-fourths of the soil in the eastern half of the United States is acid.

OVER the great majority of this acid-soil area lack of lime in the soil is the limiting factor in the growing of the principal soil building crops such as clover, sweet clover and alfalfa. In places it is more than a limiting factor—it is the "red" power that has overthrown profitable agriculture.

"The seriousness of the situation is apparent," quoting an Ohio State University publication "when we consider the fact that during the last 40 years an area of land in Ohio equal to six average counties has become too sour to be farmed profitably in competition with newer lands farther west, and has passed from the improved to the unimproved column in the report of the federal census."

Some of the older agricultural regions are experiencing even more serious consequences while others are feeling the ever-increasing pressure in a way that leaves no question as to what the problem will be eventually.

Soil acidity and its effects have been under observation and study for many years and the theories advanced in explanation are of many hues and shapes. From the point of view of the man on the land the practical and important question is not whether acidity is due to the presence of something injurious or to the absence of something beneficial in the soil. His interest lies in the problems of knowing what soils are acid, to what extent, and

what to do to combat this clover-killing aftermath of agriculture.

FIRST of all, an acid soil is known by the company it keeps—or does not keep. This is particularly true of the company it refuses to keep for on soils of high acidity alfalfa and certain clovers are not tolerated. Instead the glad-hand goes out to such outcasts as sheep-sorrel, corn spurry and horse-tails. Again, the "red" traits of soil acidity give outward expression in a reddish cast occasionally noted on fields having a heavy growth of sorrel.

But failures of leguminous crops are not always due to acidity nor does sheep sorrel often take possession of sour fields. The condition of crop growth is an indication—not a proof—of need of liming and its limitation must be recognized.

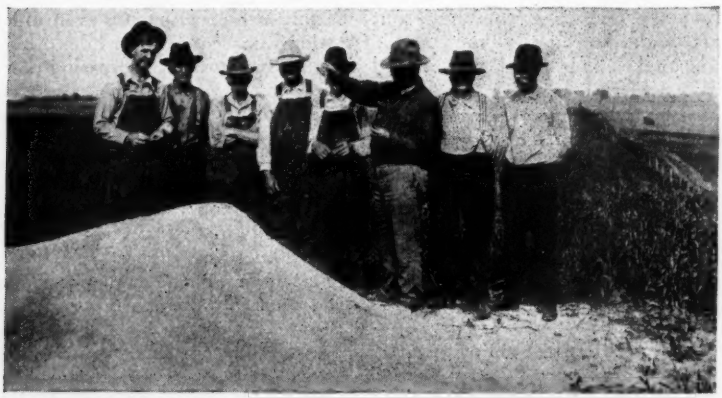
Chemical tests are the most dependable means of ferreting out soil acidity and coupled with crop growth indications are the real detectors of "red" in the soil.

There are a number of chemical tests of varying degrees of accuracy, convenience and simplicity. One test shows only whether a soil is "sweet or sour;" another measures lime requirement almost to the pound. One test requires only a glass test-tube and a bottle of chemical; another is made by use of delicate and complicated electrical equipment.

There is a certain fascination in making a chemical test and an element of speculation as to what it will reveal. This may account for the fact that in a great many communities one will find farmers who have tested their fields with litmus paper and who admit that they made the tests "just to see if the paper would get red." The litmus paper test is an easy and inexpensive one and its use for many years has resulted in farmers associating the "red" color of the paper with soil sourness.

THE litmus test is of only limited value since it does not tell whether a soil needs one or two, or more, tons of limestone. Because of the need of more accurate information the Truog, Veitch and other tests have replaced the litmus paper method. Of particular interest and of more recent development is the "Thiocyanate" test proposed a few years ago by Professor Comber of the Rothamsted, England, experi-

(*turn to page 34*)



"Yes she's sour," was the verdict of this test by an Iowa county agent, and the farmer whose soil was being tested had the limestone ready to battle with the "red" in his field.

Fire

By Dr. Frank Crane

WE have often noticed children dancing, and yelling, and otherwise making merriment about a fire in the open. These bonfires are called "Fire of Joy" by the French. They go back probably the farthest in our ancestry as the first pleasure of man was the discovery of fire. It was this which was celebrated by the Greeks in the legend of Prometheus, who was alleged to have stolen fire from the gods and given it to man, and was punished for it. ¶This legend contains the idea that somewhere in the time past man made what was probably the greatest discovery in the world which was the discovery of fire. They probably got it first from volcanic clefts and naturally regarded it superstitiously as being some kind of a gift of the gods which elevated the race of men above that of the animals. No animal makes fire. A fire is the thing that all animals are afraid of. It represents that device of mankind by which man demonstrated his superiority over the beast. ¶Our earliest parents, probably after shivering all their lifetimes in caves, rejoiced in the prophet who brought them fire. This discovery enabled them to control climate, to exist indeed in climates that were unfavorable for them and otherwise unsuitable for human life. ¶A curious German has drawn the origin of the Christian religion from the making of fire. The sun, he declared, as the source of all power upon earth was the type of the Universal Father. Wood was the Virgin, wind was the Holy Spirit which, blowing upon the wood fanned the wood into flame, and fire, being the product of burning wood, was the Only Begotten Son of the Father, the Savior of Mankind. The earliest emblem of the Christian religion was the cross, which was made by laying two sticks of wood across each other to form a fire. This explanation is curious to say the least and goes back to the beginnings of mankind. Most inventions are new ways to make fire and are valuable as being representative of man's dominion over the earth and its products. In children dancing around the open fire, therefore, we see an illustration of mankind rejoicing over that invention which represents his dominion over the earth.

Copyright, 1924, by Dr. Frank Crane

This cotton was supplied with nitrogen and phosphoric acid only, Compare it with the opposite picture.

Helping COTTON

By C. A. Whittle

AN experiment station has been located at Poplarville, Mississippi, to solve problems related to the Coastal Plain soils, soils that predominate in the lower part of that state.

Though it has long been an established fact that most Coastal Plain soils require all three elements of a complete fertilizer, there were prominent people who thought that Coastal Plain soils of Mississippi were different.

Visual evidence of the difference between cotton receiving fertilizer containing potash and one containing no potash is given in the illustration.

Observe in one picture that the plants are large, green and thrifty looking. Compare this with the small, defoliated cotton stalks in the other picture. Potash accounts for the difference.

By the way, the gentleman in the picture is Prof. E. B. Ferris, Director of the experiment station at Poplarville.

TO be more specific about the fertilizer used on each plant: The plot showing small, naked stalks received no potash, but it had an application of 440 pounds of acid phosphate, 100 pounds of nitrate of soda and 90 pounds of sulfate of ammonia per acre.

The better cotton received the same amount and kind of fertilizer plus 240 pounds of kainit. Therefore, the improvement in the appearance of one plot over the other is due to potash.

On this plat was used a complete fertilizer containing nitrogen, phosphoric acid and potash.

to SUCCESS

¶What happened when potash was left out of a Mississippi fertilizer.

But how about the yield of the two plots? Where only nitrogen and phosphoric acid was applied the yield was 684 pounds of seed cotton per acre, but where the fertilizer containing nitrogen, phosphoric acid and potash was used the yield was 1,080 pounds of seed cotton. Here is a gain of 396 pounds of seed cotton due to the presence of potash in the fertilizer. Seed cotton at present prices means that the 240 pounds of kainit applied brought an increase worth approximately $37.00. The 240 pounds of kainit probably costs the Mississippi farmer around $1.75. Therefore, with an outlay of $1.75 the returns under the conditions of the experiment are over 2,000%.

One could not, however, say with certainty how much any one element of plant food is worth by the difference between the yield where it is used compared with the yield where it is not used. For instance, if 240 pounds of kainit alone had been used on unfertilized land, one could not expect to get the 396 pounds of seed cotton increase. It takes all three plant foods together. Each does better when the other two are present to help it.

Some of the increase that has been credited to potash may be due to the fact that the potash raised the limiting factor and let phosphoric acid or nitrogen do more toward increasing yields. One can not, in fact, estimate the actual value of any one element in a fertilizer because of their interdependence and interaction.

(*turn to page 33*)

H. B. Derrick coaching his dairy judging team which won first at the State Fair this Fall.

DEPENDABLE

By F. M. Russell

U. S. Department of Agriculture

EVERY person in Kent and Harford counties, Maryland, in any manner associated with the business of farming, is getting mighty good returns on the investment in county agents, the "Dependable Derricks." H. B. Derrick holds out in Kent county while B. B. Derrick does his county agenting in Harford county, just across the Chesapeake bay. Incidently, it should be stated that there is no family connection between these two.

Both men have made impressive strides in 4H club work and they have an enthusiastic group of farm youngsters back of them on every project they undertake. It is the idea of this article to sketch briefly what these men have done to instil the proper ideas into the minds of farm boys and girls and to enumerate a few high lights.

For the past few years the Harford county Derrick has been nailing "and Son" on farm signs. He is not only making farm life attractive for its logical successors, but he is so training boys that the elders show a decided willingness to extend the firm name and take in an experienced partner. Some of the youths have gone beyond this and have established a business of their own. In a recent survey it was found that 90 young farmers in Harford county, none over 20 years of age, were worth $1,000 or more in farm holdings and actual cash, not taking into account a goodly amount in the form of experience and practical knowledge.

Derrick and his Harford county farm boys have wiped the boards in this country and have won the coveted cup offered in London for the best work of juvenile dairy livestock judges. After winning first

B. B. Derrick putting a group of farm boys and girls through their paces in judging cattle.

DERRICKS

Maryland has two of them—square-shooting county agents they are.

honors at the Maryland state fair in 1922, the three Harford county judges went to the National Dairy Show in St. Paul and again were returned victors in competition with teams from all sections of the country. The United States accepted with particular pride the work of these same three boys when they later went to London and defeated the pick of the British Isles and received an International trophy for their excellence.

Today, Derrick is watching some of his boys shake the dust of club days from their feet and get into the business of solving some of the intricate problems connected with agriculture. One of the best examples in Harford county of the second stage of club work has to do with the accomplishments of Edgar Palmer of Perryman, Maryland. After passing the preliminary tests of club activities, young Palmer in 1923 took his well bred and well cared for heifer to the National Dairy Show at Syracuse and was awarded first place and grand championship. Today, he owns one of the best foundation herds of Holstein cattle and Berkshire hogs as are to be found in the state and could cash in for a neat sum. He has the further distinction of introducing purebred livestock into a section of the state long noted for its sweet corn and truck products. He is blazing the way for more and better livestock.

JUST across the bay in Kent county equally creditable showings are being made in club work under the directorship of H. B. Derrick. At the state fair this year his team

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The Editor's

PROSPERITY HAS ITS DANGERS

Some of you have thought Mr. Genung's articles in our previous issues took too gloomy a view of the agricultural situation. I suspect that's because none of us like to face the truth when it's unpleasant.

At any rate, you will be glad to read his article in this issue and see that he notes several hopeful and cheering signs on the horizon.

It does look as if this was going to be a better year than we have had since the post war inflation period. As I explained in these pages last month, BETTER CROPS is devoted to the cause of profitable agriculture. Nobody rejoices more heartily to see farmers making money than yours to a cinder, but I would just like to say this: let's not be fooled again.

It's a great temptation when prices are on the up curve to emphasize quantity production regardless of expense or efficiency. If we get to doing that again it won't be long before the curve drops and sends us back to the conditions from which we are just recovering.

The recent depression taught us economy. It taught us the need of efficiency and business-like methods. It taught us how to make a dollar work. Those lessons were taught by bitter necessity. Now that better times are in sight, we need more than ever to remember and practice them.

TWO MEN

I like a cheerful man, but I detest a self-satisfied one. A man of my acquaintance, who frequently boasts that nothing ever worries him, has a son in college. The father was complaining about him to me a little while ago. "Education is all right," he said, "but I don't like the way it's affecting Arthur. He used to be content with the farm and with our ways, but now that he's been studying so much he wants to change everything. Always hankering to experiment some way or other. Education has just unsettled him. Filled his head full of crazy notions so that he'll never be content to run the farm like we have."

I couldn't offer him much sympathy. I remembered how he had fought every new idea that came into his county. Purebred livestock, soil fertility, cost account records, farmers'

organizations, the county agent—all of them were "silly, new fangled notions" until he was forced to accept them by the example of his neighbors. Because he and his family work like slaves, they have just about been able to hold their own these past few years.

Arthur is working his way through college, but his father grumbles because he thinks Arthur should be helping on the farm.

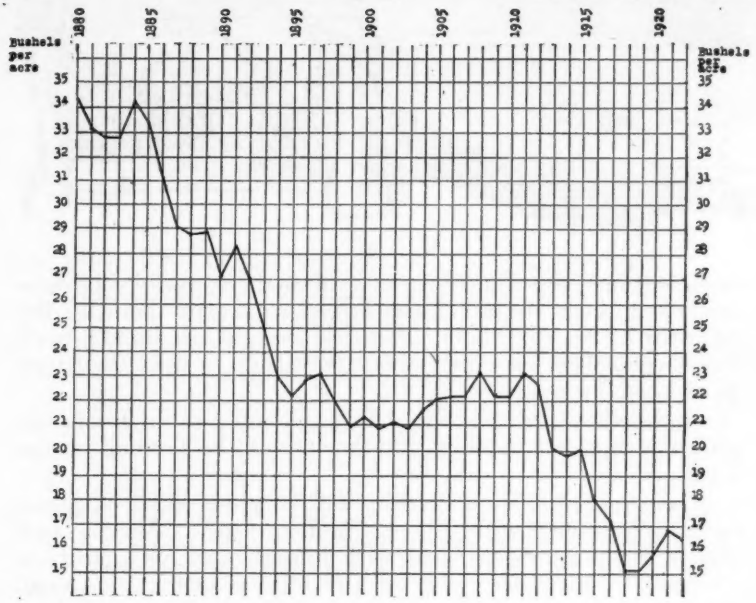
I can't foretell how Arthur will succeed when he starts farming on his own. Maybe he'll prosper. Maybe not. His father is quite satisfied with himself and his condition. He has lost the desire to grow and I think of him as a dead limb on the tree. Arthur will never be wholly satisfied no matter what his success. So I expect he will always be flourishing and fruitful.

HENRY C. WALLACE Just as we go to press, the news comes of the sudden death of Henry C. Wallace, Secretary of the Department of Agriculture. Although I am generally suspicious of people who hold political office, I always had great confidence in Henry C. Wallace. Farming was in his blood. He was peculiarly fitted for his job.

Sometimes I did not agree with his policies, but always I respected him as a sincere, honest and courageous man. He was not showy nor sensational. He administered his department in a quiet, efficient manner and left the shouting to others. He worked whole-heartedly for what he believed were the best interests of agriculture and he kept the Department of Agriculture on a high plane of usefulness and progress.

Best of all, he had a fine upstanding character and a warm, kindly personality that won him friends on every side. It will be a hard task to find another man who can inspire the confidence and respect which were universally accorded to Henry C. Wallace.

Jeff McDermid



Steady Cropping Cuts Corn Yield

By S. D. *Flora*

IN Kansas, like every other great corn State, forty years of raising corn without returning sufficient plant food to the soil has resulted in a slow but sure decrease in yield. The accompanying diagram was prepared by computing the 10-year average yield of corn per acre from Government figures for every year since the seventies and the drop in the line, despite improved methods of cultivation and seed selection, is something to hold the attention of every corn grower.

Back in 1880, when the rich, virgin prairies were being broken the 10-year average corn yield was 34.3 bushels to the acre. Ten years later it dropped to a trifle more than 27 bushels, 20 years later to a little over 21 bushels and 40 years later to less than 16 bushels as a result of continued soil robbing.

Practically all parts of the State show the same story. Brown County, in the eastern section, where the big yields are usually obtained, dropped from an average of 41 bushels per acre in 1884 to 26 bushels in recent years. Jewell County, in another corn raising section half way across the State, has dropped from a 10-year average of 37 bushels to 16 bushels in the same time, while Norton County, in the western third, dropped from 28 to 11 bushels an acre in that period. Agricultural College experts say corn is a heavy feeder and soil exhaustion soon follows from removing too much plant food without returning enough by fertilizer and crop rotation.

By the Readers of Better Crops

Less exploitation of cheap marginal land and expensive irrigation, drainage, and clearing projects by the large corporations. Increased production on the already available lands by the use of better seed stock; more thorough cultural methods and a better knowledge of the soil and its needs. Improvement in our distribution and a little less overhead on what the farmer buys in the form of less expensive advertising schemes.—*A. L. McMahon, Instructor, Montana State College, Bozeman, Mont.*

Greater efforts should be made to reduce the cost of production per unit in order to increase the margin between production cost and selling price. Too much dependence is being placed on efforts of organizations and on legislatures to increase selling price of farm products and not enough on a selection for production of those crops most likely to give returns, combined with a study of ways and means to reduce production costs.—*M. F. Barrus, Extension Work in Plant Diseases, Ithaca, N. Y.*

The thing which the grower of canning fruit in this state is most in need of is government inspection of fruit sent to the canneries. As it is now, the contract for the purchase of the fruit is binding only on the grower; when a cannery does not wish any more fruit they can, and do, turn down fruit that they have bought on account of some *fancied* defect; and the grower takes the loss.—*Lloyd Austin, Assistant in Pomology, University Farm, Davis, Calif.*

A comprehensive program for bringing about an intelligent understanding of the economic problems of farmers.—*W. R. Camp, Professor University of California, Berkeley, Calif.*

Eliminate in so far as possible the breeding places of injurious insect pests of tree and plant life. Exclusion is many times cheaper and more effective than control work. Reforestration of our idle lands will help matters along wonderfully; likewise financially.—*H. L. McIntyre, Supervisor Gipsy Moth Control, Conservation Commission, Albany, N. Y.*

Plant less acres. Grow more legume crops. Build up the soil. Diversify crops. Grow and keep more dairy cows. Keep more and better poultry, and keep them better. Give more attention to home improvements, inside and out; plant shade trees, make walks, paint houses, make lawns, water system and lights in home. General home improvement instead of the *craze* for money.—*J. R. Sams, County Agent, Columbus, Polk County, N. C.*

Education we owe much to, but educate that we may do more and better work instead of less and away from work as is becoming the common practice.—*C. R. Quick, Dairy Farmer, North Canton, Conn.*

Form a *National* Junior Federation of young folks. Teach 'em real cooperation. Then 20 years from now we will have no "agricultural problems."—*John F. Case, Farmer-Editor, Wright City, Mo.*

In this section farmers are having no trouble producing the goods. Getting adequate values for the product to show a profit seems to be the trouble. Cooperative marketing looks like the remedy to me. —*F. M. Johnson, Farmer, Waldoboro, Maine.*

Rural organization, a means for systematic study of problems affecting agriculture and social uplift. Boys' and girls' club work, a potent factor in bringing about a better agriculture and a more intelligent citizenship.—*C. L. Beason, County Agent, Bryan, Brazos County, Texas.*

Preach optimism. Teach building up the soil by use of legumes, manure and crop rotation. Preach cooperation until the farmers can cooperate in marketing, conserving labor, etc.—*C. L. Howard, County Agent, Lancel, Kansas.*

For cotton states. Take King Cotton from his throne which he has occupied so long. This is being accomplished slowly by Mr. Boll Weevil. Diversify more. Get more pure bred dairy cattle in each county. Produce more hay, preferably legumes. Organize pure seed associations in each community and county. The day has come when seedsmen use little discretion in the selling of their seeds and for this reason I think we should grow pure seeds at home and eliminate the problem of buying seed from seedsmen.—*C. C. Kemp, County Agent, Homer, Georgia.*

Do all of the fall plowing you can. Sow crimson clover on thin land and turn it under. Stay on the farm more and leave the automobile in the garage. Don't spend a dollar's worth of gas going twenty miles for a plow point that will cost fifty cents. Raise all the cattle and sheep possible. Do more work on the farm and less grumbling. Be around at feeding time, pay your hired help regularly and make them earn it. Reduce the tariff.—*C. B. Williams, State Game Warden, State Capitol, Nashville, Tenn.*

Produce home supplies as far as economical. Make cash crop surplus. Keep a sufficient number of live stock to utilize all feed crops that can be economically produced. Ship or sell only the best products of the farm. Grade, pack and sell cooperatively, cooperative production is as essential as cooperative selling.—*E. W. Gaither, Dist. Agt. Agr. Extension, Wilmington, N. C.*

Kill the tariff on everything. —*R. Freeman, County Agent, St. Paul, Minn.*

Increase the acre yields by more and better fertilization and protection from insect pests.—*R. H. Benton, Jr., County Agent, Winnsboro, La.*

Continued effort by the Agricultural Extension Forces to increase efficiency in producing farm crops. Realization on the part of the National Farm Bureau Federation that if such a farmer body is to function effectively as a national representation of farmer interest, it must proceed much as a national Chamber of Commerce. Understanding teaching, and carrying out methods of marketing all major farm products in an orderly manner, instead of dumping into the custody of speculators who are able to finance their ventures from prestige gained by past successful speculations.—*J. Ross Lintner, County Agent, Leesburg, Va.*

Produce all food and feed used on farm. Economical production. Universal use of *best seed* available. A system of farming that will utilize labor every work day in the year, rain or shine. Cooperative buying and selling.—*O. F. McCrary, District Agent, Farm Demonstration Work, Raleigh, N. C.*

By Ted Butlar

BETTER CROPS' Washington Correspondent

As American agriculture settles down for its annual winter breathing spell with the most comfortable feeling it has enjoyed for a wearisome four years, unofficial estimates state that the gross income from agricultural production this year will exceed that of last year by approximately $500,000,000. There is bona fide evidence on every hand that the farmer goes into winter quarters in a greatly improved financial condition. This does not mean, however, that the need for further improvement has passed. It will take more than one good year of profits to get agriculture back on a completely satisfactory basis.

An agricultural census of the world is being planned for 1930 and will be promoted by the International Institute of Agriculture at Rome, says Asher Hobson, American delegate to the Institute, who has been in Washington conferring with government officials. The idea back of the census is to place the agricultural statistics of all countries on a comparable basis for the intelligent interpretation of wool and fiber production and needs, Hobson states. A total of seventy-one countries now have membership in the Institute, he reports, and the statistical work has been built up to a point where it reports currently on 70 per cent of the world wheat crop exclusive of Russia.

A further foot-and-mouth disease scare was thrown into the livestock industry since the last issue of BETTER CROPS by reports that it was found in districts near Houston, Texas. The forces of the state and federal governments were thrown into the campaign immediately and recent reports made by Dr. J. C. Mohler, chief of the federal forces, state that it has been brought under control. The outbreak was confined to five herds. Similar satisfactory reports come from California, the scene of the first outbreak since 1914. As a final precaution in suppressing the outbreak on the Pacific coast federal officials found it necessary to exterminate the deer on two ranges of the Stanislaus National Forest in California.

Further brightness to the domestic cotton situation is evidenced by reports that European demand will be stimulated by several factors. After surveying the field carefully, officials of the U. S. D. A. state that world supplies of cotton have been short for several years and prices have been correspondingly high. There is little doubt, these officials say, but that supplies of cotton goods in consumers' hands are relatively low and favorable employment and industrial conditions in many European countries are barometers of a healthy demand for cotton.

Even though farmers were not as quick to grasp hold of radio as urban inhabitants a survey among county agents just completed shows that during the past year the number of receiving sets on farms has increased from 145,000 to 370,000. An average of 130 farmers in every county own sets and are classed as en-

thusiastic "listeners-in." The development of radio work in the U. S. D. A. has been keeping pace with interest in the field until today it is possible for any farmer to pick up a variety of information about market prices and other information on his business by making a few slight adjustments on whatever kind of a set he may own.

When the Bureau of Public Roads got through checking up the number of registered vehicles as of July 1, it found that exactly 15,552,077 were credited to the United States. This represents an increase of 2,549,650 or 20 per cent over the registration of July 1, 1923, There is now one motor vehicle for each 6.6 persons, which places this country far ahead of the rest of the world when it comes to motor transportation. The greatest number of motor vehicles in proportion to population was found in the Pacific Coast states where every 3.4 persons own one. New York leads with 1,233,362, closely followed by California with 1,184,015.

And speaking of automobiles and motor transportation, this same government bureau has found that motorists of the country pay in the form of gasoline taxes and registration fees an average of only a quarter of a cent a mile. That is what the fees paid in a year amount to when divided by 6,000 which is believed to be the average motorist's annual mileage. Most of this money collected is put right back into better roads. During the past year, 81 per cent of the motor vehicle license revenues and 58 per cent of the gasoline taxes were turned over to state highway departments for road construction while counties got a good share of the remainder for road purposes.

Chris L. Christensen, who traces back to soil where cooperation among farmers enjoyed its inception, has been placed in charge of the division of agricultural cooperation of the U. S. D. A. Already he has completed plans for extensive expansion of his work in order that the federal government might be in shape to ably assist as it can the many new cooperative organization springing up daily. This development is the culmination of ten years work by the government and is in response to a widespread demand from the cooperatives.

Better Cabbage Yields

(*From page 10*)

than did the incomplete mixture. The application of potash made a difference of 3 tons per acre in the total crop yield.

Under normal market conditions, these increased yields represent a very nice profit over and above the cost of the fertilizers. With average prices for cabbage, say between $8 and $10 per ton, the crop values show very satisfactory results. An increased yield of 8.7 tons per acre, due to the complete fertilizer application, means a gain from $69 to $87, in the value of the crop produced. This amount paid the cost of the fertilizer several times over. The value of the crop increase, due to the use of 212 pounds of sulfate of potash, was from $24 to $30 per acre.

The beneficial results from the fertilizer in the improvement of the quality of the cabbage was also very noticeable, the heads on the complete fertilizer soil weighing from 7 to 10 pounds each. On the land where no potash was applied the cabbages were very uneven, with a larger percentage of small heads. From a market standpoint, this difference would result in greatly decreased returns.

When you have finished with this copy of BETTER CROPS, *pass it on to your neighbor. Tell him what you liked in it and whisper in his ear that for the paltry sum of $1 a year he can have a copy each month all to himself. A letter to Jeff will do the trick.*

Dependable Derricks

(*From page 23*)

of young dairy experts took high honors and the Maryland team under his tutelage won fourth at the National Dairy Show recently held at Milwaukee.

Several Kent county boys have won state and national prominence for their accomplishments. It is difficult to pick out the most noteworthy cases, but there really is something remarkable about the Sutton boys living on a farm near Chestertown, Maryland. Two of the boys, Stanley, age 19, and Martin, 17, already have won their spurs while the other three, Albert, 16, Frank, 14, and Clarence, 11, are just coming on, so to speak. Both Stanley and Martin were on the Kent county dairy judging team this fall that won high place in the state, while the latter was on the state team that brought distinction to Maryland at the National Dairy Show by taking fourth in a lively field.

Last spring when the farmers around Chestertown were looking the field over for someone to take charge of their centralized tomato plant bed they selected young Stanley Sutton. Responsibility for the success of the tomato industry of 32 farmers was thrust on youthful shoulders but it rested there lightly. And the fact that the season was the worst in 30 years for the production of tomato plants did not worry Stanley. When the plants were ready for distribution and transplanting he sold 400,000 of them to contracting farmers at $1.50 a thousand, gave them complete satisfaction and pocketed a neat profit.

One of the first things Stanley did after getting his acre plant bed in shape was to apply 20 tons of manure and 1,500 pounds of 2-8-5 fertilizer. Then on top went 700 pounds of tankage and two tons of leaf mold for the proper mulching. His plants were so successful that he had to turn down orders for over 100,000 from farmers who had been caught short-handed as a result of the poor season. Needless to say, farmers around Chestertown are breathing easier now that Stanley has agreed to undertake this important project again next year. The State Vegetable Growers' Association has asked him to discuss his work at its winter meeting.

Last year the Sutton boys raised some of the best seed corn in the state and farmers were glad to pay $3.50 a bushel for all they had. Both of them have taken entries to the National Dairy Show and have been in the money. Today they are slowly but surely working themselves into the purebred business with the highest type of livestock.

It really seems unfair to the Derricks and to the scores of young farm folks under them to point out a few isolated cases of club work in an attempt to prove exactly what is going on in Kent and Harford counties. These two counties are full of club successes. Today the Derricks have a number of boys emerging from club work after several years experience, and they are finding themselves ideally fitted to take their place in the operations of the home place or to start up their own business.

A 4H club is a splendid vehicle for the establishment of more efficient methods of farming. The Derricks again have proven this.

An egg marketing association that has met with surprising success. It's in Connecticut and it has an unusual story connected with it. Paul Mehl, Marketing Specialist at the Connecticut Agricultural College, tells the story of it in the December issue of BETTER CROPS.

Corn Responds to Potash

On soils deficient in available potash, the response to potash fertilization is more marked on corn than on any other general farm crop. In the Middlewestern States wheat and corn are the general crops most commonly fertilized, and a comparison of the response of these two crops to potash fertilizers can be made in a considerable number of experiments.

For this comparison, 29 experiments in Ohio, Illinois and Missouri were selected in all of which the effect of potash has been definite and in some cases very pronounced. In all of these experiments both corn and wheat are grown in rotation and the effect of potash can be measured in addition to phosphate alone. The following experiments are included in the summary of results given:—

In Ohio:—Wooster, Strongsville, Germantown, Carpenter, Findlay, Miami Co., Clermont Co., Hamilton Co., and Mahoning Co.

In Illinois:—Cutler, Odin, Dubois, Ewing, Oblong, Toledo, Enfield, Lebanon, West Salem, and Raleigh.

In Missouri: — Bowling Green, Carthage, Fulton, Hurdland, Laclede, Lamar, Salem, St. James, Unionville, and Vandalia.

In these experiments the average results on corn and wheat from potash in addition to phosphate in the fertilizer have been as follows:—

In all but four of these 29 experiments, potash gave a larger increase on corn than on wheat, and in these four experiments the effect of potash on corn was distinctly beneficial. No experiments were included in which manure was used as a basic treatment. In fact, the use of manure on corn in several of the Indiana experiments made it impossible to use the results in this comparison even though the soils show a definite response to potash. The excellent results that have almost universally been obtained with manure on corn are undoubtedly due, in many instances, to the relatively large amount of potash that it contains, and the practice of applying manure and acid phosphate on corn and complete fertilizer on wheat is, therefore, sound. But it is safe to say that not more than one-third of the corn acreage can be properly manured and evidently more consideration should be given to the potash content of the fertilizer on the other two-thirds of the corn acreage on soils that have shown a definite response to potash.

Mention should be made of the fact that in most of the Ohio and in all of the Missouri experiments relatively small quantities of potash were applied while in the Illinois experiments heavier applications were made.—*Soil Improvement Committee.*

Experiments		Increase for Potash	
State and Number	Average Duration (Years)	Corn Bus.	Wheat Bus.
OHIO —(9 experiments).....	12.9	4.9	1.5
ILLINOIS —(10 experiments).....	9.3	9.3	4.3
MISSOURI—(10 experiments).....	9.0	4.9	1.5
AVERAGE —(29 experiments).....	10.3	6.5	2.4

Helping Cotton to Success

(*From page 21*)

But it is certainly true, that the addition of the 240 pounds of kainit to the fertilizers at Poplarville brought about a condition whereby the plants were able to increase their yield nearly 60 per cent.

The conclusion is clear enough that the Coastal Plain soils of Mississippi respond to potash, and potash pays well under cotton, when associated with phosphoric acid and nitrogenous fertilizers. In a word, it is a three-element fertilizer that is needed for cotton on Mississippi Coastal Plain soils rather than a two-element fertilizer, as some have contended.

Reverting to the appearance of the two plots, why is the cotton that has received no potash devoid of leaves while the other is well covered with foliage? Rust is the cause of the leaves shedding. Rust on cotton is a manifestation of potash hunger, as is evidenced by the fact that potash always prevents rust if applied in sufficient quantity.

A plant denuded of its leaves is like a factory that has been dismantled. The leaves are the plant's factory for the production of its fruit. When the leaves are destroyed, as in case of rust, fruit production ceases. The cotton plants in this case ran short on potash; rust set in before the plants had time to set a full crop; the leaves shed and the formation of fruit stopped. In other words, the cotton plant staged a potash strike and quit work at a very critical time when the output should have been at its height.

During a drouthy period rust seems to show up worst. This year there was a severe drouth, hence much rust. Wherever potash was used in abundance the cotton stalks kept green and busy manufacturing fruit despite the scant moisture. Where the potash supply was short there was rust to destroy the leaves quite generally over the south, and even where rust did not show up seriously a scarcity of potash slowed down production and the bolls formed during the latter part of the season did not fill out as well as where available potash was present in abundance. Potash, therefore, is no small factor in helping cotton to overcome the vicissitudes of drouth.

The argument for complete fertil-

On the left the cotton received nitrogen, phosphoric acid and potash. On the right no fertilizer was used.

izers on the Mississippi Coastal Plain soils will probably be more conclusive if one compares the plot receiving complete fertilizers with a plot receiving no fertilizer at all.

The illustration given reveals a striking difference between the rows receiving complete fertilizer on the left and the rows receiving no fertilizer on the right. The yield of the unfertilized plot on the right turned out to be 288 pounds of seed cotton to the acre, while the yield on the fertilized plot on the left turned out to be 1,176 pounds of seed cotton per acre.

The Coastal Plain soils of Mississippi are like the Coastal Plain soils of regions further east, also of Louisiana, Arkansas and East Texas. Farmers who have been fertilizing with only nitrogen and phosphoric acid will find in these experiments at Poplarville, Mississippi, evidence of a better paying method, and it is apparent that they will make no mistake if they apply fertilizers containing potash.

Sleuthing for Red in the Soil

(*From page 18*)

ment station. This method has been commercially named "Richorpoor" and "The Improved Comber" and has been quite extensively used.

The equipment necessary for making the test consists of a glass test-tube and "a saturated solution of Potassium Thiocyanate in alcohol, ether or acetone."

Here are the directions:

> Fill test-tube one-fourth full of dry soil. Add Thiocyanate solution to make half full and shake for 30 seconds. Let stand until soil settles. Read the results.

If the liquid above the soil is colorless the soil is not acid. But if the liquid is red it portends evil to the alfalfa or clover seeding of the not distant future. For "red" means acid, as with the litmus test.

One Iowa druggist saw the possibilities in this simple test and prepared the solution as a service for his farm trade. There is no reason why interested farmers cannot take a bottle of this chemical and three or four test-tubes and know just how every field on the farm tests.

The directions for making the test call for "dry" soil for the reason that the presence of too much moisture interferes with the development of the red color. This is a serious handicap to field use during certain seasons of the year.

To meet this difficulty, Dr. P. E. Emerson, of the Iowa Experiment Station, suggests using another solution to overcome or lessen the effect of the moisture. This is "a saturated solution of ammonium molybdate in ether." The use of this mixture before adding the thiocyanate gives as good a color development with moist soils as with dry ones. If the soil is very wet the difficulty will be only partially overcome, however.

"For moist soils add 10 to 20 drops of a saturated solution of neutral ammonium molybdate in ether," writes Dr. Emerson. "Then use the Thiocyanate solution made as follows: 9 parts acetone and 1 part ether saturated with Potassium thiocyanate. Many druggists handle these chemicals or can get them readily. They can easily make up these solutions for county agents, agricultural teachers, farmers or others interested in testing soils."

Nor is this the final word in soil tests. Within the last few months Professor Spurway, of the Michigan Experiment Station, has brought forth the "Soiltex" method in which shades of yellow, blue and green tell the story of "red" in the soil.

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Meridian—
Meridian Fertilizer Factory
Tupelo—
Tupelo Fertilizer Factory

MISSOURI

St. Louis—
American Agricultural Chem. Co.
Armour Fertilizer Works
Swift & Company

NEW JERSEY

Bound Brook—
Nitrate Agencies Co.

NEW YORK

Buffalo—
American Agricultural Chem. Co.
International Agricultural Corp.
New York—
American Agricultural Chem. Co.
Armour Fert. Wks. (East. Hdqrs.)
International Agricultural Corp.
Mutual Fertilizer Co.
National Aniline & Chemical Co.
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Ton Litters

(*From page 8*)

brought out by the project. This was a litter of 12 raised by Wilbur Gray and weighed at six months 2,140 pounds. His account follows:

"Breeding: Both sire and dam were purebreds. The dam and granddam possessed excellent production records. This litter was the third from the dam and in her three litters she farrowed a total of 38 pigs, saving 34 of them. The granddam of the litter had a record of 66 pigs farrowed in six litters. The power to produce and save a good number of pigs was characteristic of the whole herd of 18 sows which saved a total of 138 pigs ready for market. In the spring of 1922 the herd of 14 sows on this farm saved 110 pigs to market age.

"Management: The breeding herd and the litters on this farm were handled according to the best methods, including special attention to exercise and sanitation. After breeding the sows were allowed free range and fed in a manner to induce the taking of exercise, and after the litters came special pains were taken to get the pigs to exercise. At farrowing time close attention was given to the care of the sows and pigs with the view of saving every pig farrowed. A stove in the farrowing house insured against loss from cold weather and a box near the stove received the pigs as they were born. They were ear marked and their teeth nipped before being put back with the sow after she had completed farrowing. Before placing the sows in the house it was thoroughly cleaned with hot lye water and disinfected, and then cleaned frequently during the time it was occupied by the sows and litters. Permanent lots surrounding the farrowing house were plowed and sowed to a grass crop twice a year as a sanitation measure as well as a means of furnishing pasture.

"Feeding: At breeding time the sows and herd boar were fed ground oats and corn, tankage and bluegrass pasture. The first month of the gestation period the sows got ear corn and bluegrass pasture, to which tankage was added at the beginning of the second month. This ration was continued until about a week before farrowing time when the tankage was dropped and the sows fed on ground oats and corn. After farrowing the sows got a light feed of ground oats for the first five or six days, after which a little corn was added. Tankage was added to the ration when the pigs were about ten days or two

Working for a gold medal in a ton litter club.

weeks old and this ration was continued until the pigs were weaned. After weaning the litter received ground oats and corn, tankage and milk. The grain was self-fed. This ration was continued until the last 38 days of the feeding test when they were fed ground wheat and corn, soaked shelled corn, and milk.

"The litter was farrowed on February 3 and officially weighed at 180 days of age on August 4. Weights of the litter at different periods were: June 28, 1,284 pounds; July 5, 1,434 pounds; July 12, 1,580 pounds; July 19, 1,716 pounds; July 26, 1,942 pounds; and August 4, 2,140 pounds."

IT is evident that certain things are needed to produce ton litters. The factory must be built right. Every ton litter produced in Indiana in the two years past—97 altogether—has been sired by a purebred boar. Eighty-six of the 97 sows have been purebreds, six were high grades and five were mixed breeding. Another outstanding fact about these sows that produced ton litters is that they themselves came from large litters and produced and raised large litters in turn. Records of 78 of these ton litter dams showed that they came from litters that averaged more than 10 pigs. Only one of them came from a litter of less than 10 pigs, but she she was one of eight.

These same 78 ton litter dams have farrowed and raised 267 litters during their period of service totaling 2,760 pigs, or an average of a little more than 10 pigs to the litter. Better still they raised 2,392 of the pigs that were farrowed, an average of almost nine pigs to the litter.

Indiana farmers are convinced of three fundamentals of pork production which they have learned from their experience in the ton litter contest. They have seen that the proper selection of breeding hogs will add materially to the reproductive capacity of the sows kept for breeding use; that it pays to put forth every effort to increase the size of the litter raised to weaning time; and that clean, sanitary quarters, lots and pasture will go a long way toward reducing the losses from disease and parasites.

ALTHOUGH Indiana must be credited with being the mother of the ton litter idea, other States saw the wonderful possibilities in using this project to develop pork production and rapidly appropriated the idea with various modifications to fit their own particular conditions. Illinois entered into the idea for the first time last year and finished with a record of 87 ton litters. Ohio finished with 39 ton litters, Texas with 28, Wisconsin with 17, Michigan with 16 and the State of Washington with five.

The ton litter idea in Wisconsin was conducted on a slightly different basis in so far as the time of making the awards was concerned. A sliding scale was adopted in order to allow all litters of different ages to qualify at the time of the final round-up at the State Fair. A litter of six months of age to qualify was required to weigh a ton; but at the time of the round up the weights were evened up by making the qualifying weight 21½ pounds more for each day over six months or by subtracting 20 pounds for each day under that age.

Richard Groth & Son of Ixonia, Wisconsin, won the State ton litter round-up contest staged during fair week, winning by a big margin and beating their nearest competitor by 548 pounds. This litter of 14 pigs weighed at six months of age 3,175 pounds. When shown at the fair they were 231 days old, and their actual weight on the day of the contest was 4,570 pounds. According to the sliding scale adopted in the State contest to make all litters equal in weight for age this litter would have needed to weigh only 3,097 pounds to qualify for the

show. They beat that weight by 1,473 pounds.

FOR the grand sweepstakes record in total poundage per litter at six months the Corn Belt gives way to the Lone Star State. Texas produced the heaviest litter yet recorded, a litter of 12 which weighed 3,898½ pounds at six months. Vic Hill of Waco was the man who did the trick. Fourteen pigs were farrowed in the litter. One was born dead and one was a runt. Since the sow had only 12 teats the runt was killed.

Mr. Hill kept a careful record of the cost of producing this litter including the feed fed to the sow from the time she was bred, the service fee of the boar which was $5, and the feed fed to the litter to six months of age. The total cost of the litter up until weaning time was $20.95. The feed fed to the pigs amounted to $205.39, a total cost of $226.34. The total cost divided by the weight gives a cost of $5.83 per hundred pounds. The pigs were worth at six months of age $9.50 a hundred.

In the seven or eight States engaged last year in the ton litter work there were perhaps hundreds of records made with litters of various sizes and under varied conditions worthy of note and where records have been made with a number of litters in the same herd under ordinary farm conditions the work has been extremely valuable in the lessons it has taught. If the same effort and knowledge is applied to every litter in the herd that has been given to the few of special favor, pork production will have advanced a great way as a profitable enterprise. After all that is the object of the ton litter work. As Wiley of Indiana has put it. "The Hoosier Ton Litter is the show window of the factory in which pork is produced economically and profitably. The show window—ton litters—attracts. Folks hear about it, come in and learn how it was done."

A Tobacco Chewing Germ

(*From page 12*)

Manure and tobacco refuse. Use no manure or tobacco stalks on the plantbed. Manure may carry the germs and tobacco refuse from a diseased crop will certainly do so. Use mineral fertilizers only.

Chewing and smoking tobacco. If you chew tobacco, don't spit in the plantbed and don't let your tenant or helper do it. If you smoke, don't fill your pipe near the bed. These precautions apply especially to home cured tobacco. Manufactured tobacco has usually aged long enough before use to be safe from the standpoint of wildfire.

Animals. The human animal is probably the most prolific carrier of wildfire. He strips tobacco and works the plantbed on the same day, and the germs get a free ride from the barn to the bed. He helps his neighbors at transplanting time and they help him in return. If wildfire is in one of the plantbeds it's pretty sure to get into the other. When you trade labor make sure you are not trading infection.

Examine the plants before setting the field. Look for spots like those shown in the pictures. If either disease is present don't use the plants unless you can't borrow, buy or steal other plants from a clean bed.

Rotate the tobacco land. If this is not feasible, plow the tobacco stubble immediately after harvest. If the stubble is turned under so there is no growth of suckers the wildfire germs cannot overwinter in the soil.

The farmers of Virginia have gotten results with the program outlined above. It costs practically nothing except a little forethought and care.

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A Turn in the Road

(*From page* 14)

but the combined income from corn and the small grains will be a respectable crop item. In addition, and what is most important, the Corn Belt's great money product—hogs—is now definitely on the way up. The cycle of hog prices is the most nearly predictable movement of its kind. Prices of hogs have already forsworn their bankruptcy level of the last year and a half. Before another September they are going to materially higher levels, unless history is an utterly faithless guide. This all means, in a nutshell, that 1924 sees the biggest income in the Corn Belt in five years, and that the stage is at least set for a decent play in 1925.

That is not to say, however, that this great Upper-Mississippi-Valley territory is back riding the crest of prosperity. Such is not the case. The Corn Belt has been way down in the depths for nearly four years and now it sees a returning gleam of daylight. That is the situation—not good times, as the region has known them in years gone by, but markedly better times than for four years.

The Corn Belt has worked painfully but skillfully out from under a calamitous combination of general price collapse and grain surplus, both befalling in 1920 and both precipitated by circumstances beyond the control of producers. Dame Nature brought forth whopping yields of corn three straight seasons, regardless. The acreage was reduced somewhat but it is not possible to make violent shifts overnight in the acreage of a basic crop, around which is built the entire farming system of a region. So there was a lot of corn.

The inevitable and logical result was a lot of hogs. The only possible way of carrying along the vast store of grain and working it off at all was by doing so on the hoof. They raised and fed two tremendous crops of pigs and so worked up the corn, but the price of hogs sagged to profane depths.

This has been one of the most distressing chapters in Corn Belt history. But now it looks, for the first time, fairly like a closed chapter. The corn surplus is a thing of the past. The hog surplus is a passing thing. The stage is set for higher-priced hogs. All of which is in favor of increasing rather than decreasing income in the Central States. Farmers sell corn to each other, and high-priced corn maybe a liability to the livestock feeder. But hogs are sold out of the agricultural community and the years when they are high priced are usually years of increased total farm income, even though there are always fewer hogs to sell.

So things are looking up in the Corn Belt in spite of the present poor crop of corn. There is a noticeably better feeling everywhere and it is manifested not only in trade but in a gradual stiffening up in land values. A year ago you could hardly sell a farm though it would produce everything from alfalfa to petroleum and was priced lower than the Salton Sea. The only farms changing hands were those going back into the well-known hands of the mortgagee. But now farms are selling; no boisterous movement as yet, but they are selling, and with a little actual cash once more a feature in the transactions.

DOWN in the South there is prospect of a rather larger and better distributed income than last year. Texas and North Carolina had splendid crops of cotton last season and made money accordingly. It is not too much to say that one year ago this time Texas

stood out as the most prosperous agricultural State in the country.

This year, however, conditions have been somewhat reversed. Texas and much of Louisiana and Oklahoma have suffered from prolonged drought, while the territory east of the River has fared better. The latter has not been seriously hurt by the weevil, yet has had enough rain to bring out the worth of the fertilizer it used. The western cotton country does not use fertilizer. Rice and truck crops will also produce good average income this season; rice growers are feeling cheerful, in fact. The southern fruit crop, like tobacco, was too bountiful to maintain good prices but the total gross income from both runs into respectable figures.

The South is already in strong position again with respect to its volume of indebtedness and this year will mark its greatest cash purchasing power for new goods in five years. Cotton production has for two years approached a remarkable economic adjustment. The supply is just about large enough to meet the world's needs at a fair price and at the same time the price does not work a hardship on consumers. It is not often that so profitable a balance is struck between supply and demand in the staple crops and if cotton producers know when they are well off they will take some note of the foregoing fact.

The Far West, unfortunately, does not appear likely to increase its income over last season. Better grain prices have been more or less offset by poorer crop in the Oregon and Palouse country. The wool and lamb crops were larger than last year but prices thereof have not been quite as strong. The Coast has been hurt by drought, by frosts, and by the foot-and-mouth disease.

In the range country, the cattle situation remains an enigma. From the Rio Grande to Canada, the mountain country is strewn with financial wrecks that once were big cattle men. Inquire almost anywhere through that territory about well-known operators and the answer is one word, "busted." There has been considerable liquidation of young stock as well as cows, and it seems reasonable that the cattle surplus will cease to exist by and by. There is evidence of growing optimism among cattle men and even some quiet stocking up on the part of long-headed operators who still have financial resources. But there is much confusion of opinion over the cattle situation. Men look for the tide to turn but the big unanswered question is when.

ALL in all, however, farmers will have more money to spend this fall than they have had since 1919. Probably upwards of a billion dollars more than last year, and even more than that in terms of relative purchasing power because the disparity in price between farm products and other commodities has narrowed down somewhat.

But, as usual, there is a sober note running through this glad symphony. Men accustomed to facing the music will hardly overlook this minor strain since it really supplies the key-note for the whole piece. The point is that improvement in prices of the major food crops has been primarily due to a freak of the weather rather than to basic adjustments in acreage. Not very often does it happen that we get a bumper yield of wheat, while a few miles north Canada has almost a crop failure. Not very often do we increase the corn acreage as we did last spring and still see the weather knock off a half-billion bushels or more. In agriculture, man proposes but the weather disposes.

Farmers who fought their way through the 70's and the 90's know that they are fighting through another readjustment period. They do not look upon 1924 as the end of the battle; but to many it is a

desperately needed victory, a chance to dig in, consolidate their gains, and get ready for the rest of the fight. There is no question about the final outcome. Ten years hence will see farmers in the strongest position of a generation. Meanwhile, blessed are the thrifty for they shall inherit the earth.

How I Plan My Work

(*From page 5*)

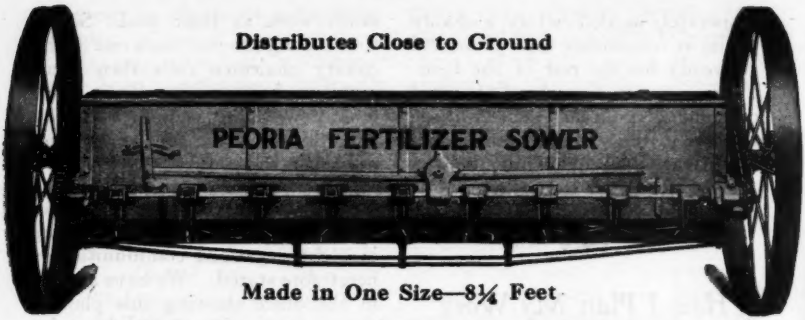
taken up and those selected by the work committee take charge of the various projects. Sometime slight changes in the personnel suggested will be made but finally the community selects a committeeman to take charge of each project. This same process is gone through in each of the communities organized in the county. These various community leaders have as their county chairman a man or woman selected at the annual county meeting to act as such.

To illustrate, in St. Charles County we have in charge of our home economics work in the county Miss Isabel Hillenkamp as county chairman of home economics. In Augusta Community Mrs. I. M. McCormick is local committeeman, in O'Fallon Community Miss Suzie Keithly is local committeeman, and so on with each community organized. At certain times during the year Miss Hillenkamp will call a meeting of all the community committeemen to discuss achievements up to that date and plan for the successful completion of the goals they have set. Some of the old organized communities may set as a goal the holding of one millinery class, one garment-making school and as much more as they feel they can accomplish during the year. Other communities that are new at the work may not set so much work as their goal. Sometime during the year each one of the county chairmen calls their community chairmen in for a conference with the view of bettering conditions relative to their special project in the county.

We have fifteen county leaders and 74 community leaders working in eight organized communities as heretofore stated. We have a chart in the office showing this plan of organization with the goal set by the various communities in such a way that it is self-explanatory to anyone who calls.

As various committeemen complete their project and report to this office or as the various communities hold the meetings on achievement programs we give this careful publicity through our local papers and through the press channels. In this way we not only give credit to those who have cooperated, but we interest other people and unorganized communities in planning work for themselves.

According to P. H. Ross, former county agent leader in Missouri and just recently elected director of extension in Arizona, St. Charles County has accomplished the most good work of any county in the state. Carefully organized communities with leaders having a definite piece of work to do during the year and with no leader overburdened have made it possible to claim this record. As the years pass and these leaders who have done definite work in the county retire to allow others to take up the work, our list of leaders in the county will increase and the time will soon come when all the people of the community will have had experience in helping work out the program of work. This will give us a county filled with leaders, whereas at the present time our corps of leaders is somewhat limited.



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Are Comparisons Odious?

(*From page 4*)

electric companies discarding millions of dollars worth of steam engines for the new, more efficient steam turbines.

Scientists in Paris, working on the atom, report that in a single glass of ordinary water lies enough atomic energy to propel all the vessels of the world for an aeon.

A Zeppelin successfully and safely sails 5,500 miles in eighty hours. A monstrous vehicular tube is driven under the Hudson River, linking New York and New Jersey, Siamese-twin fashion, with an artery of steel.

A new process for making gas cuts costs in four. A new celluloid paint can be sprayed on in one-tenth the time it takes to varnish a piano.

In insulin, doctors have found a cure for diabetes, and promise that cancer a few years from now will be but only a memory.

SINCE the laying away of the grain cradle and since the birth of the reaper, agricultural inventiveness seems to have lost its fecundity. True, the tractor helps. And Eli Whitney was of some assistance. But what has been done in the last ten or twenty years to compare with the advances made in other professions and businesses?

Lucky Strike cigarettes are rolled, packed, packaged and shipped by audacious, cunning machines with intricate steel fingers. But we still pick cotton by hand.

We husk corn, squat fashion like a squaw, while overhead a pilotless aeroplane, governed by radio, heeds the command of a distant mechanic who presses buttons.

Many farmers still continue to raise fifteen bushels of wheat an acre, while by scientific time-motion study, more Buicks are turned out with less men and half the energy.

We half wittedly dump our wheat on the market at ebb, and

About Ourselves

BETTER CROPS is a monthly magazine edited primarily for those who act in an advisory capacity to the farmer.

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suffer severe deflation of the wallet. But a chewing gum king, student of psychology, pays a personal income tax of a million and a half dollars, wrung from the pockets of those who need more bread but buy gum. By gum! He knows marketing *and he controls his own distribution!*

WE fight amongst ourselves while capitalists gather around the festive board at the Bankers Club, plan new coups, and contentedly and amusedly gurgle at their own acumen.

Agricultural sons go to the city to learn to be chauffeurs, and farm daughters want to go in the mov'es. Perhaps "there's a reason." "Surely such unpopularity must be deserved."

Comparisons are odious only when we compare and learn no lesson—and even *then* they are odious only as *any* time wasting is odious. We read, shrug our shoulders, bite off another chaw of Piper Heidsick and—turn on the radio!

And that's *that!*

Lack of Potash and Rust of Soy Beans

By C. A. Whittle

WHEN the outer edges of the newer leaves on the soy bean plant turn yellow the soy bean is showing signs of potash hunger or rust. This yellowing spreads over the leaf. Soon the yellow spots turn brown and disintegration sets up leaving holes where the leaf was attacked or perhaps the whole leaf is destroyed This the farmer knows is rust. On some soil types that have not been properly fertilized the damage is quite serious.

Dr. F. A. Wolf, plant pathologist of North Carolina Experiment Station, recently issued a statement concerning the serious losses to soy beans in that state due to rust which he characterizes as the result of a lack of sufficient potash.

That potash prevents rust of soy beans, Dr. Wolf says has been clearly demonstrated. He refers to farmers in that state who grow early Irish potatoes and after the potatoes are harvested follow with a crop of soy beans. Where 300 to 400 pounds of kainit per acre are applied at the time of seeding the soy beans they have been able to prevent rust and mature a full crop of seed. Where potash is not applied in such cases there has been considerable rust damage.

When it is considered that the fertilizer used under the early potatoes contained a comparatively high percentage of potash and was used in liberal amounts, evidently leaving no small residue of plant food for the use of soy beans, it seems apparent that rust is not to be kept down on soy beans without a liberal use of potash.

The manifestation of rust is more pronounced where there has been no preceding application of fertilizer. Beans grown on unfertilized land compared with land receiving an application of potash give the most striking evidence of the benefit of potash, according to Dr. Wolf.

North Carolina is the source of much of the soy bean seed planted throughout the country and whatever affords protection from rust helps develop the largest yield of desirable seed and is of much importance to the North Carolina grower.

But what is true of potash hunger in North Carolina is manifesting itself quite generally, especially on gray and sandy soils where there is very generally a lack of potash. On any land, however, that shows rust there is the indisputable evidence of the need of potash.

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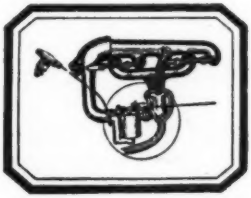

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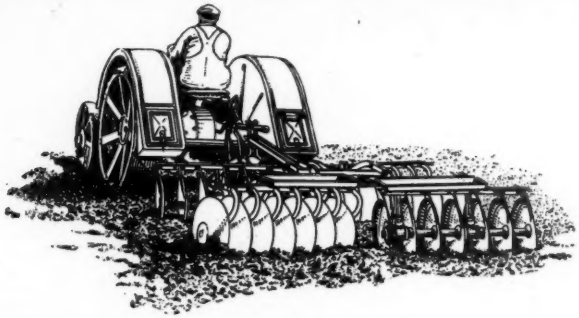

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